

Circumpolar Arctic Vegetation Mapping Workshop

By D.A. Walker and Carl J. Markon

Open File Report 96-251

**U.S. Department of Interior
U.S. Geological Survey
National Mapping Division**

CIRCUMPOLAR ARCTIC VEGETATION MAPPING WORKSHOP

Edited by: D. A. Walker ^{1/} and C. J. Markon ^{2/}

A compilation of abstracts and short papers presented at the
Komarov Botanical Institute
St. Petersburg, Russia
March 21-25, 1994

Any use of trade, product, or firm names in this publication is for descriptive purposes only and does not constitute endorsement by the U.S. Geological Survey.

^{1/} University of Colorado, Boulder, Co.

^{2/} Hughes STX Corporation, Work performed under U.S. Geological Survey contract 1434-92-c-4004.

TABLE OF CONTENTS

PREFACE	7
I. INTRODUCTORY COMMENTS.....	9
WELCOME	
B.A. Yurtsev	9
BACKGROUND AND GOALS OF THE CIRCUMPOLAR ARCTIC VEGETATION MAPPING WORKSHOP	
Skip Walker	11
CONSERVATION OF ARCTIC FLORA AND FAUNA (CAFF) INITIATIVE	
.....	16
Stephen S. Talbot	16
NATIONAL SCIENCE FOUNDATION, ARCTIC SYSTEM SCIENCE	
Mapping Workshop, St.Petersburg, Russia from Patrick J. Webber	19
PANARCTIC FLORA PROJECT	
David F. Murray	21
ITEX AT PRESENT	
Ulf Molau	23
II. STATUS OF CIRCUMPOLAR MAPS.....	24
REVIEW OF VEGETATION MAPPING IN ARCTIC ALASKA	
Stephen S. Talbot	24
STATUS OF ARCTIC VEGETATION MAPPING IN CANADA	
S.C. Zoltai	38
LEGEND FOR VEGETATION MAP OF CANADIAN ARCTIC ISLANDS AND ADJACENT MAINLAND	
Sylvia Edlund	41
REVIEW OF VEGETATION MAPPING IN GREENLAND	
Christian Bay	46
VEGETATION MAPPING IN ICELAND	
Eythór Einarsson	52
VEGETATION ZONE MAPPING OF NORTHERN FENNOSCANDIA AND SVALBARD	
Arve Elvebakk	54
VEGETATION MAPPING IN FINNMARK, NORTHERN NORWAY, USING LANDSAT TM DATA.	
Bernt E. Johansen	61
PHYTOCOENOTIC MAPPING OF WESTERN SIBERIAN ARCTIC	
Liya I. Meltzer	67
AN ATTEMPT OF SMALL-SCALE GEOBOTANICAL AND LANDSCAPE MAPPING OF NORTHWESTERN SIBERIA	
N.G. Moskalenko	74
THE PRINCIPLES OF THE CREATION OF THE VEGETATION MAP OF EAST EUROPEAN AND WEST SIBERIAN TUNDRAS AT 1:7,500,000- SCALE	

I.S.Iljina.	75
T.K. Yurkovskaya.	75
VEGETATION MAPPING IN ARCTIC YAKUTIA	
V.O. Perfilieva and K.A. Volotovskiy.	77
JOINT YAKUTAI-JAPAN RESEARCH PROJECT: DECODING THE REMOTELY SENSED IMAGES OF VEGETATION IN THE LOWER REACHES OF THE LENA RIVER	
Konstantin A. Volotovskiy.	79
THE VEGETATION MAP OF TAIMYR PENINSULA BASED ON LAND- MANAGEMENT DATA	
R.P. Shchelkunova.	81
THE EXPERIENCE OF VEGETATION MAPPING OF CHUKOTKA	
A.N. Polezhayev.	83

III. CONSIDERATIONS FOR A CIRCUMPOLAR VEGETATION MAP LEGEND 84

LATITUDINAL (ZONAL) AND LONGITUDINAL (SECTORAL)

PHYTOGEOGRAPHIC DIVISION OF THE CIRCUMPOLAR ARCTIC (IN RELATION TO THE STRUCTURE OF THE VEGETATION MAP LEGEND)	
B.A. Yurtsev.	84
FLORISTIC STUDIES IN RELATION TO VEGETATIONAL CHANGES	
Steven B. Young.	90
CONSIDERATIONS REGARDING A LEGEND FOR A CIRCUMPOLAR ARCTIC VEGETATION MAP (1:7,500,000-scale) BASED ON GREENLAND EXPERIENCE	
Fred Daniëls.	92
PRINCIPLES OF THE RUSSIAN SCHOOL OF GEOBOTANICAL CARTOGRAPHY AND ITS APPLICATION TO THE CREATION OF A CIRCUMPOLAR ARCTIC VEGETATION MAP	
S.S. Kholod.	99
DOMINANT-BIOMORPH APPROACH TO THE CLASSIFICATION OF VEGETATION AND ITS REFLECTION IN THE STRUCTURE OF THE LEGEND OF THE VEGETATION MAP OF CHUKCHI PENINSULA	
Adrian E. Katenin.	100

IV. GEOGRAPHIC INFORMATION SYSTEMS AND REMOTE SENSING... 103

NORTH SLOPE BOROUGH GIS: THE CREATION OF A MULTI-DISCIPLINARY INFORMATION SYSTEM WHICH REFLECTS THE NEEDS OF THE INUPIAT PEOPLE AND THE NORTH SLOPE BOROUGH	
Kurt Jacobsen.	103
INFORMATION ON THE RUSSIAN ARCTIC ECOLOGICAL ATLAS	
Irina Safronova.	105
A HIERARCHIC GEOGRAPHIC INFORMATION SYSTEM FOR NORTHERN ALASKA: INSIGHTS TOWARD A CIRCUMPOLAR ARCTIC	

VEGETATION MAP	
Skip Walker	107
REMOTE SENSING AND GEOGRAPHIC INFORMATION SYSTEMS: THEIR APPLICATION TO MAPPING CIRCUMPOLAR ARCTIC VEGETATION	
Carl J. Markon	116
THE UNEP/GRID PROGRAM	
Christopher Smith	120
ARCTIC ENVIRONMENTAL DATABASE: PROGRAMME FOR THE RUSSIAN FEDERATION	
A.P. Kapitsa, S. Kaitala, E.L. Golubeva, N.B. Denisov	123
THE INTERNATIONAL DATABASE ON THE ARCTIC ENVIRONMENT: PROBLEMS AND PROSPECTS	
Olga A. Novoselova	125
Appendix	127
Appendix A	
Appendix B	
Appendix C	